

~~<110> Anderson, Christen M.  
Clevenger, William~~

~~X120> COMPOSITIONS AND METHODS FOR REGULATING  
ENDOGENOUS INHIBITOR OF ATP SYNTHASE, INCLUDING  
TREATMENT FOR DIABETES~~

<140> US

<141> 2002-02-27

<160> 72

<170> FastSEQ for Windows Version 4.0

 $\langle 210 \rangle$  1

<211> 6

<212> PRT

### <213> Artificial Sequence

 $\langle 220 \rangle$ 

<223> Epitope tag

 $\langle 400 \rangle$  1

His His His His His His

1

5

 $\langle 210 \rangle$  2

<211> 7

<212> PRT

### <213> Artificial Sequence

<220>

<223> Epitope tag

 $\langle 400 \rangle$  2

Asp Tyr Asp Asp Asp Asp Lys

1

5

 $\langle 210 \rangle$  3

$\langle 211 \rangle$  6

<212> PRT

### <213> Artificial Sequence

$\langle 220 \rangle$

<223> Epitope tag

<400> 3  
 Asp Thr Tyr Arg Tyr Ile  
 1 5

<210> 4  
 <211> 6  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Epitope tag

<400> 4  
 Thr Asp Phe Tyr Leu Lys  
 1 5

<210> 5  
 <211> 10  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Epitope tag

<400> 5  
 Glu Gln Lys Leu Ile Ser Glu Glu Asp Leu  
 1 5 10

<210> 6  
 <211> 9  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Epitope tag

<400> 6  
 Glu Glu Glu Glu Tyr Met Pro Met Glu  
 1 5

<210> 7  
 <211> 9  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Epitope tag

<400> 7  
 Tyr Pro Tyr Asp Val Pro Asp Tyr Ala  
 1 5

<210> 8

204220" 5T8E800T  
 10083315-022702

<211> 5  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Epitope tag

<400> 8  
 Arg Tyr Ile Arg Ser  
 1 5

<210> 9  
 <211> 6  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Epitope tag

<400> 9  
 Pro Pro Glu Pro Glu Thr  
 1 5

<210> 10  
 <211> 8  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> cellular transport sequence

<400> 10  
 Arg Lys Lys Arg Arg Gln Arg Arg  
 1 5

<210> 11  
 <211> 21  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> cellular transport sequence

<400> 11  
 aggaagaagc ggagacagag a

21

<210> 12  
 <211> 324  
 <212> DNA  
 <213> Rattus norvegicus

<400> 12  
 atggcaggct cggcggttgcc ggttcgggct cggctcgggtg tctgggggtat gagggtcctg 60  
 caaaccocgag gcttcggctc ggactcgtcg gagagcatgg attcgggcgc tggctccatc 120

20220915 09:30:00

cgagaagctg gtggggcctt cgggaaacga gagaaggctg aagaggatcg gtacttccga 180  
 gagaagacta gagagcagct ggctgccttg aagaagcacc atgaagatga gattgaccac 240  
 cattcgaagg agatagagcg tctgcaaaaa cagatcgaac ggcataagaa gaagattaaa 300  
 tacctaaaga atagttagca ttga 324

<210> 13  
 <211> 107  
 <212> PRT  
 <213> Rattus norvegicus

<400> 13  
 Met Ala Gly Ser Ala Leu Ala Val Arg Ala Arg Leu Gly Val Trp Gly  
 1 5 10 15  
 Met Arg Val Leu Gln Thr Arg Gly Phe Gly Ser Asp Ser Ser Glu Ser  
 20 25 30  
 Met Asp Ser Gly Ala Gly Ser Ile Arg Glu Ala Gly Gly Ala Phe Gly  
 35 40 45  
 Lys Arg Glu Lys Ala Glu Glu Asp Arg Tyr Phe Arg Glu Lys Thr Arg  
 50 55 60  
 Glu Gln Leu Ala Ala Leu Lys Lys His His Glu Asp Glu Ile Asp His  
 65 70 75 80  
 His Ser Lys Glu Ile Glu Arg Leu Gln Lys Gln Ile Glu Arg His Lys  
 85 90 95  
 Lys Lys Ile Lys Tyr Leu Lys Asn Ser Glu His  
 100 105

<210> 14  
 <211> 75  
 <212> DNA  
 <213> Rattus norvegicus

<400> 14  
 atggcaggct cggcggttggc ggttcgggct cggctcgggtg tctgggggtat gagggtcctg 60  
 caaaccgcag gcttc 75

<210> 15  
 <211> 509  
 <212> DNA  
 <213> Mus musculus

<400> 15  
 cgcaacgcga gctgagcaac gccgaagaca atggcaggct cggcggttggc agttcgggct 60  
 cgggttcgggtg tctgggggtat gaaggtcctg caaaccgcag gcttcgtctc ggactcgtcg 120  
 gatagcatgg atacgggagc tggctccatc cgagaagctg gtggagcctt cggaaaacga 180  
 gaaaaggctg aagaggatcg gtacttccga gagaagacta aagaacagct ggctgccctg 240  
 aggaaacacc atgaagatga gattgaccac cattcgaagg agatagagcg tctgcagaag 300  
 caaattgatc gccataagaa gaagatccaa caactaaaga ataattcattg aatgcgcgca 360  
 gtcgggtccct cacagagtgg cccgtatcac tccccacgtc tgtagacaca tggctttgaa 420  
 tgattactat ttgggtctgtg tgctactaac agataataaa cgtaccaccag gaaactttta 480  
 aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa 509

<210> 16  
 <211> 106  
 <212> PRT

20220515-022702

<213> Mus musculus

<400> 16

Met Ala Gly Ser Ala Leu Ala Val Arg Ala Arg Phe Gly Val Trp Gly  
 1 5 10 15  
 Met Lys Val Leu Gln Thr Arg Gly Phe Val Ser Asp Ser Ser Asp Ser  
 20 25 30  
 Met Asp Thr Gly Ala Gly Ser Ile Arg Glu Ala Gly Gly Ala Phe Gly  
 35 40 45  
 Lys Arg Glu Lys Ala Glu Glu Asp Arg Tyr Phe Arg Glu Lys Thr Lys  
 50 55 60  
 Glu Gln Leu Ala Ala Leu Arg Lys His His Glu Asp Glu Ile Asp His  
 65 70 75 80  
 His Ser Lys Glu Ile Glu Arg Leu Gln Lys Gln Ile Asp Arg His Lys  
 85 90 95  
 Lys Lys Ile Gln Gln Leu Lys Asn Asn His  
 100 105

<210> 17

<211> 23

<212> DNA

<213> Artificial Sequence

<220>

<223> PCR primer

<400> 17

cacaaagata tcggaaccct cta

23

<210> 18

<211> 25

<212> DNA

<213> Artificial Sequence

<220>

<223> PCR primer

<400> 18

aagtgggctt ttgctcatgt gtcac

25

<210> 19

<211> 47

<212> DNA

<213> Artificial Sequence

<220>

<223> PCR primer

<400> 19

tgagctcaga tatggcagga agaagcggag acagagagga atggcag

47

<210> 20

<211> 34

<212> DNA

1008345-02700

<213> Artificial Sequence

<220>

<223> PCR primer

<400> 20

atataagctt tcaatgctca ctattcttta ggta

34

<210> 21

<211> 33

<212> DNA

<213> Artificial Sequence

<220>

<223> Tat-derived cellular targeting sequence

<400> 21

agatatggca ggaagaagcg gagacagaga gga

33

<210> 22

<211> 11

<212> PRT

<213> Artificial Sequence

<220>

<223> Tat-derived cellular targeting sequence

<400> 22

Arg Tyr Gly Arg Lys Lys Arg Arg Gln Arg Gly  
1 5 10

<210> 23

<211> 48

<212> DNA

<213> Artificial Sequence

<220>

<223> PCR primer

<400> 23

tgagctcagg atatggcagg aagaagcgga gacagagagg aggctcgg

48

<210> 24

<211> 34

<212> DNA

<213> Artificial Sequence

<220>

<223> PCR primer

<400> 24

atataagctt tcaatgctca ctattcttta ggta

34

<210> 25

20220515T093001

<211> 25  
 <212> PRT  
 <213> Artificial Sequence

<220>

<223> Polypeptide consisting of amino acids 22-46 of the  
 mature form of rat IF1

<400> 25

Phe Gly Lys Arg Glu Lys Ala Glu Glu Asp Arg Tyr Phe Arg Glu Lys  
 1 5 10 15  
 Thr Arg Glu Gln Leu Ala Ala Leu Lys  
 20 25

<210> 26  
 <211> 17  
 <212> PRT  
 <213> Artificial Sequence

<220>

<223> Polypeptide consisting of amino acids 42-58 of the  
 mature form of rat IF1

<400> 26

Leu Ala Ala Leu Lys Lys His His Glu Asp Glu Ile Asp His His Ser  
 1 5 10 15  
 Lys

<210> 27  
 <211> 7  
 <212> PRT  
 <213> Artificial Sequence

<220>

<223> Cellular transport sequence

<400> 27

Arg Lys Lys Arg Arg Gln Arg  
 1 5

<210> 28  
 <211> 25  
 <212> PRT  
 <213> Rattus norvegicus

<400> 28

Met Ala Gly Ser Ala Leu Ala Val Arg Ala Arg Leu Gly Val Trp Gly  
 1 5 10 15  
 Met Arg Val Leu Gln Thr Arg Gly Phe  
 20 25

<210> 29

10033815-022703

<211> 34  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Synthetic peptide fragment derived from rat IF1  
 sequence.

<400> 29  
 Ser Ile Arg Glu Ala Gly Gly Ala Phe Gly Lys Arg Glu Lys Ala Glu  
 1 5 10 15  
 Glu Asp Arg Tyr Phe Arg Glu Lys Thr Arg Glu Gln Leu Ala Leu  
 20 25 30  
 Lys Lys

<210> 30  
 <211> 20  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Synthetic peptide fragment derived from rat IF1  
 sequence.

<400> 30  
 Ser Ile Arg Glu Ala Gly Gly Ala Phe Gly Lys Arg Glu Lys Ala Glu  
 1 5 10 15  
 Glu Asp Arg Tyr  
 20

<210> 31  
 <211> 20  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Synthetic peptide fragment derived from rat IF1  
 sequence.

<400> 31  
 Ile Arg Glu Ala Gly Gly Ala Phe Gly Lys Arg Glu Lys Ala Glu Glu  
 1 5 10 15  
 Asp Arg Tyr Phe  
 20

<210> 32  
 <211> 20  
 <212> PRT  
 <213> Artificial Sequence

202305-023001



<220>

<223> Synthetic peptide fragment derived from rat IF1  
sequence.

<400> 32

Arg	Glu	Ala	Gly	Gly	Ala	Phe	Gly	Lys	Arg	Glu	Lys	Ala	Glu	Glu	Asp
1				5					10					15	
Arg	Tyr	Phe	Arg												
			20												

<210> 33

<211> 20

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic peptide fragment derived from rat IF1  
sequence.

<400> 33

Glu	Ala	Gly	Gly	Ala	Phe	Gly	Lys	Arg	Glu	Lys	Ala	Glu	Glu	Asp	Arg
1				5					10					15	
Tyr	Phe	Arg	Glu												
			20												

<210> 34

<211> 20

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic peptide fragment derived from rat IF1  
sequence.

<400> 34

Ala	Gly	Gly	Ala	Phe	Gly	Lys	Arg	Glu	Lys	Ala	Glu	Glu	Asp	Arg	Tyr
1				5					10					15	
Phe	Arg	Glu	Lys												
			20												

<210> 35

<211> 20

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic peptide fragment derived from rat IF1  
sequence.

<400> 35

Gly	Gly	Ala	Phe	Gly	Lys	Arg	Glu	Lys	Ala	Glu	Glu	Asp	Arg	Tyr	Phe
-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----

10083815.022702

<210> 39

<211> 20  
 <212> PRT  
 <213> Artificial Sequence

<220>

<223> Synthetic peptide fragment derived from rat IF1  
 sequence.

<400> 39

Gly	Lys	Arg	Glu	Lys	Ala	Glu	Glu	Asp	Arg	Tyr	Phe	Arg	Glu	Lys	Thr
1				5					10					15	
Arg	Glu	Gln	Leu												
			20												

<210> 40  
 <211> 20  
 <212> PRT  
 <213> Artificial Sequence

<220>

<223> Synthetic peptide fragment derived from rat IF1  
 sequence.

<400> 40

Lys	Arg	Glu	Lys	Ala	Glu	Glu	Asp	Arg	Tyr	Phe	Arg	Glu	Lys	Thr	Arg
1				5					10					15	
Glu	Gln	Leu	Ala												
			20												

<210> 41  
 <211> 20  
 <212> PRT  
 <213> Artificial Sequence

<220>

<223> Synthetic peptide fragment derived from rat IF1  
 sequence.

<400> 41

Arg	Glu	Lys	Ala	Glu	Glu	Asp	Arg	Tyr	Phe	Arg	Glu	Lys	Thr	Arg	Glu
1				5					10					15	
Gln	Leu	Ala	Ala												
			20												

<210> 42  
 <211> 20  
 <212> PRT  
 <213> Artificial Sequence

<220>

<223> Synthetic peptide fragment derived from rat IF1

10083815-033703

sequence.

<400> 42  
 Glu Lys Ala Glu Glu Asp Arg Tyr Phe Arg Glu Lys Thr Arg Glu Gln  
 1 5 10 15  
 Leu Ala Ala Leu  
 20

<210> 43  
 <211> 20  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Synthetic peptide fragment derived from rat IF1  
 sequence.

<400> 43  
 Lys Ala Glu Glu Asp Arg Tyr Phe Arg Glu Lys Thr Arg Glu Gln Leu  
 1 5 10 15  
 Ala Ala Leu Lys  
 20

<210> 44  
 <211> 20  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Synthetic peptide fragment derived from rat IF1  
 sequence.

<400> 44  
 Ala Glu Glu Asp Arg Tyr Phe Arg Glu Lys Thr Arg Glu Gln Leu Ala  
 1 5 10 15  
 Ala Leu Lys Lys  
 20

<210> 45  
 <211> 11  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Synthetic peptide fragment derived from rat IF1  
 sequence.

<400> 45  
 Ser Ile Arg Glu Ala Gly Gly Ala Phe Gly Lys  
 1 5 10

202220-02200

<210> 46  
 <211> 12  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Synthetic peptide fragment derived from rat IF1  
 sequence.

<400> 46  
 Ser Ile Arg Glu Ala Gly Gly Ala Phe Gly Lys Arg  
 1 5 10

<210> 47  
 <211> 13  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Synthetic peptide fragment derived from rat IF1  
 sequence.

<400> 47  
 Ser Ile Arg Glu Ala Gly Gly Ala Phe Gly Lys Arg Glu  
 1 5 10

<210> 48  
 <211> 14  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Synthetic peptide fragment derived from rat IF1  
 sequence.

<400> 48  
 Ser Ile Arg Glu Ala Gly Gly Ala Phe Gly Lys Arg Glu Lys  
 1 5 10

<210> 49  
 <211> 15  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Synthetic peptide fragment derived from rat IF1  
 sequence.

<400> 49  
 Ser Ile Arg Glu Ala Gly Gly Ala Phe Gly Lys Arg Glu Lys Ala

10083815-000002

1 5 10 15

<210> 50  
 <211> 16  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Synthetic peptide fragment derived from rat IF1  
 sequence.

<400> 50  
 Ser Ile Arg Glu Ala Gly Gly Ala Phe Gly Lys Arg Glu Lys Ala Glu  
 1 5 10 15

<210> 51  
 <211> 17  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Synthetic peptide fragment derived from rat IF1  
 sequence.

<400> 51  
 Ser Ile Arg Glu Ala Gly Gly Ala Phe Gly Lys Arg Glu Lys Ala Glu  
 1 5 10 15  
 Glu

<210> 52  
 <211> 18  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Synthetic peptide fragment derived from rat IF1  
 sequence.

<400> 52  
 Ser Ile Arg Glu Ala Gly Gly Ala Phe Gly Lys Arg Glu Lys Ala Glu  
 1 5 10 15  
 Glu Asp

<210> 53  
 <211> 19  
 <212> PRT  
 <213> Artificial Sequence

10083315-03300

<220>

<223> Synthetic peptide fragment derived from rat IF1  
sequence.

<400> 53

Ser Ile Arg Glu Ala Gly Gly Ala Phe Gly Lys Arg Glu Lys Ala Glu  
1 5 10 15  
Glu Asp Arg

<210> 54

<211> 20

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic peptide fragment derived from rat IF1  
sequence.

<400> 54

Ser Ile Arg Glu Ala Gly Gly Ala Phe Gly Lys Arg Glu Lys Ala Glu  
1 5 10 15  
Glu Asp Arg Tyr  
20

<210> 55

<211> 21

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic peptide fragment derived from rat IF1  
sequence.

<400> 55

Ser Ile Arg Glu Ala Gly Gly Ala Phe Gly Lys Arg Glu Lys Ala Glu  
1 5 10 15  
Glu Asp Arg Tyr Phe  
20

<210> 56

<211> 22

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic peptide fragment derived from rat IF1  
sequence.

<400> 56

Ser Ile Arg Glu Ala Gly Gly Ala Phe Gly Lys Arg Glu Lys Ala Glu

10083815-032703

1                    5                    10                    15  
 Glu Asp Arg Tyr Phe Arg  
                   20

<210> 57  
 <211> 23  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Synthetic peptide fragment derived from rat IF1  
                   sequence.

<400> 57  
 Ser Ile Arg Glu Ala Gly Gly Ala Phe Gly Lys Arg Glu Lys Ala Glu  
   1                    5                    10                    15  
 Glu Asp Arg Tyr Phe Arg Glu  
                   20

<210> 58  
 <211> 24  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Synthetic peptide fragment derived from rat IF1  
                   sequence.

<400> 58  
 Ser Ile Arg Glu Ala Gly Gly Ala Phe Gly Lys Arg Glu Lys Ala Glu  
   1                    5                    10                    15  
 Glu Asp Arg Tyr Phe Arg Glu Lys  
                   20

<210> 59  
 <211> 25  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Synthetic peptide fragment derived from rat IF1  
                   sequence.

<400> 59  
 Ser Ile Arg Glu Ala Gly Gly Ala Phe Gly Lys Arg Glu Lys Ala Glu  
   1                    5                    10                    15  
 Glu Asp Arg Tyr Phe Arg Glu Lys Thr  
                   20                    25

<210> 60

202210"STB8800T



<211> 26  
 <212> PRT  
 <213> Artificial Sequence

<220>

<223> Synthetic peptide fragment derived from rat IF1  
 sequence.

<400> 60

Ser	Ile	Arg	Glu	Ala	Gly	Gly	Ala	Phe	Gly	Lys	Arg	Glu	Lys	Ala	Glu
1				5				10						15	
Glu	Asp	Arg	Tyr	Phe	Arg	Glu	Lys	Thr	Arg						
			20					25							

<210> 61  
 <211> 27  
 <212> PRT  
 <213> Artificial Sequence

<220>

<223> Synthetic peptide fragment derived from rat IF1  
 sequence.

<400> 61

Ser	Ile	Arg	Glu	Ala	Gly	Gly	Ala	Phe	Gly	Lys	Arg	Glu	Lys	Ala	Glu
1				5				10						15	
Glu	Asp	Arg	Tyr	Phe	Arg	Glu	Lys	Thr	Arg	Glu					
			20					25							

<210> 62  
 <211> 28  
 <212> PRT  
 <213> Artificial Sequence

<220>

<223> Synthetic peptide fragment derived from rat IF1  
 sequence.

<400> 62

Ser	Ile	Arg	Glu	Ala	Gly	Gly	Ala	Phe	Gly	Lys	Arg	Glu	Lys	Ala	Glu
1				5				10						15	
Glu	Asp	Arg	Tyr	Phe	Arg	Glu	Lys	Thr	Arg	Glu	Gln				
			20					25							

<210> 63  
 <211> 29  
 <212> PRT  
 <213> Artificial Sequence

<220>

<223> Synthetic peptide fragment derived from rat IF1

100833815-032702

sequence.

<400> 63

Ser Ile Arg Glu Ala Gly Gly Ala Phe Gly Lys Arg Glu Lys Ala Glu  
 1 5 10 15  
 Glu Asp Arg Tyr Phe Arg Glu Lys Thr Arg Glu Gln Leu  
 20 25

<210> 64

<211> 30

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic peptide fragment derived from rat IF1  
 sequence.

<400> 64

Ser Ile Arg Glu Ala Gly Gly Ala Phe Gly Lys Arg Glu Lys Ala Glu  
 1 5 10 15  
 Glu Asp Arg Tyr Phe Arg Glu Lys Thr Arg Glu Gln Leu Ala  
 20 25 30

<210> 65

<211> 31

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic peptide fragment derived from rat IF1  
 sequence.

<400> 65

Ser Ile Arg Glu Ala Gly Gly Ala Phe Gly Lys Arg Glu Lys Ala Glu  
 1 5 10 15  
 Glu Asp Arg Tyr Phe Arg Glu Lys Thr Arg Glu Gln Leu Ala Ala  
 20 25 30

<210> 66

<211> 32

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic peptide fragment derived from rat IF1  
 sequence.

<400> 66

Ser Ile Arg Glu Ala Gly Gly Ala Phe Gly Lys Arg Glu Lys Ala Glu  
 1 5 10 15  
 Glu Asp Arg Tyr Phe Arg Glu Lys Thr Arg Glu Gln Leu Ala Ala Leu

10083315-032703

20

25

30

<210> 67  
 <211> 33  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Synthetic peptide fragment derived from rat IF1  
 sequence.

<400> 67  
 Ser Ile Arg Glu Ala Gly Gly Ala Phe Gly Lys Arg Glu Lys Ala Glu  
 1 5 10 15  
 Glu Asp Arg Tyr Phe Arg Glu Lys Thr Arg Glu Gln Leu Ala Ala Leu  
 20 25 30  
 Lys

<210> 68  
 <211> 35  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Epitope tag sequence.

<400> 68  
 Met Gly Gly Ser His His His His His Gly Met Ala Ser Met Thr  
 1 5 10 15  
 Gly Gly Gln Gln Met Gly Arg Asp Leu Tyr Asp Asp Asp Asp Lys Asp  
 20 25 30  
 Pro Ser Ser  
 35

<210> 69  
 <211> 25  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Organellar targeting sequence

<400> 69  
 Met Ala Gly Ser Ala Leu Ala Val Arg Ala Arg Leu Gly Val Trp Gly  
 1 5 10 15  
 Met Arg Val Leu Gln Thr Arg Gly Phe  
 20 25

<210> 70

10083815-000700

<211> 13  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Cellular transport sequence

<400> 70  
 Gly Tyr Gly Arg Lys Lys Arg Arg Gln Arg Arg Arg Gly  
 1 5 10

<210> 71  
 <211> 107  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Fusion protein

<400> 71  
 Met Gly Gly Ser His His His His His His Gly Met Ala Ser Met Thr  
 1 5 10 15  
 Gly Gly Gln Gln Met Gly Arg Asp Leu Tyr Asp Asp Asp Asp Lys Asp  
 20 25 30  
 Pro Ser Ser Gly Tyr Gly Arg Lys Lys Arg Arg Gln Arg Arg Arg Gly  
 35 40 45  
 Met Ala Gly Ser Ala Leu Ala Val Arg Ala Arg Leu Gly Val Trp Gly  
 50 55 60  
 Met Arg Val Leu Gln Thr Arg Gly Phe Ser Ile Arg Glu Ala Gly Gly  
 65 70 75 80  
 Ala Phe Gly Lys Arg Glu Lys Ala Glu Glu Asp Arg Tyr Phe Arg Glu  
 85 90 95  
 Lys Thr Arg Glu Gln Leu Ala Ala Leu Lys Lys  
 100 105

<210> 72  
 <211> 321  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Nucleotide that codes for fusion protein.

<400> 72  
 atgggggggtt ctcatcatca tcatcatcat ggtatggcta gcatgactgg tggacagcaa 60  
 atgggtcggg atctgtacga cgatgacgat aaggatccga gctcgggcta tggcaggaag 120  
 aagcggagac agagaaggag aggtatggca ggctcggcgt tggcgggttcg ggctcggctc 180  
 ggtgtctggg gtatgagggt cctgcaaacc cgaggcttct ccatccgaga agctgggtggg 240  
 gccttcggga aacgagagaa ggctgaagag gatcgggtact tccgagagaa gactagagag 300  
 cagctggctg ccttgaagaa g 321

10083815-03270